IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

Application of:	)	
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John L. Lautzenhiser	)	Confirmation No. 4024
	)	
Serial No.: 09/801,201	)	Examiner: Nam V. Nguyen
	)	
Filed: March 7, 2001	)	Group Art Unit: 2612
	)	
For: **RATE-OF-CHANGE SWITCHES AND CONTROLLABLE APPARATUS**	)	Docket No.: 212-02

APPEAL BRIEF

This Appeal Brief is submitted in support of the Notice of Appeal filed on November 4, 2010, responding to the final Office Action mailed August 4, 2010.

I. REAL PARTY IN INTEREST

The real party in interest is Lautzenhiser Technologies, LLC, assignee of the above-referenced application as indicated by the assignments recorded at the following reel/frame locations: 011614/0186 and 019848/0567.

II. RELATED APPEALS AND INTERFERENCES

Application number 11/599,048 filed on November 14, 2006, claims the benefit of the above-referenced application and is currently under appeal and is in the briefing stage. No decision by the Board of Patent Appeals and Interferences has yet been rendered.

III. STATUS OF THE CLAIMS

Claims 1-5, 9-17, 19, 31-52, 62-63, and 74-96 are pending in this application, were rejected or objected to by the outstanding final Office Action mailed August 4, 2010, and are the subject of this Appeal.

IV. STATUS OF AMENDMENTS

There have been no amendments made to claims 1-5, 9-17, 19, 31-52, 62-63, and 74-96 after the final Office Action mailed August 4, 2010, and all amendments made to claims 1-5, 9-17, 19, 31-52, 62-63, and 74-96 before this final Office Action have been entered. The claim listing in Section VIII. CLAIMS APPENDIX represents the present state of the claims.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Embodiments of the claimed subject matter are summarized below with reference numbers and references to the written description ("specification") and drawings by page and line number or figure and block number. The subject matter described below appears in the original disclosure at least where indicated, and may further appear in other places within the original disclosure.

The present invention relates to rate-of-change switches for controllable devices. Specifically, the present invention provides "rate-of-change control devices that articulate in response to adjustable rate-of-change thresholds, timed-opportunity switches that can be articulated by one or more appropriately-timed inputs, and multiplexers, or ECUs, that can be used by physically handicapped persons to control such things as wheelchair and hospital bed positioning actuators, lightening, entertainment, communication, computer and productivity devices." P. 4, ll. 6-15.

Embodiments according to independent claim 1 involve a switch (p. 12, ll. 11; Fig. 1, block 26) which comprises: a tilt-sensitive transducer (p. 11, ll. 17-24; Figs. 1 and 2A, blocks 38A and 38B) that produces an output signal in response to a user manipulating said transducer (p. 12, ll. 11-13); a differentiator (Fig. 1, blocks 40A and 40B) adapted to receive said output signal and to determine a rate-of-change of said output signal (p. 13, ll. 11-24); means (Fig. 1, block 42), connected to said differentiator, for performing a first switching function based at least in part on the determined rate-of-change (p. 13, l. 25—p. 15, l. 11; Fig. 1, block 42; Fig. 2A, block 63).

Embodiments according to independent claim 4 involve a switch (p. 12, ll. 11; Fig. 1, block 26) which comprises: a tilt-sensitive transducer (p. 11, ll. 17-24; Figs. 1 and 2A, blocks 38A and 38B) that produces an output signal in response to a user input (p. 12, ll. 11-13); a first

differentiator (Fig. 1, blocks 40A and 40B) adapted to receive said output signal and adapted to determine a first derivative of said output signal (p. 13, ll. 11-24); a second differentiator (Fig. 1, blocks 40A and 40B) connected to said first differentiator adapted to determine a second derivative of said output signal representing a rate-of-change of the output signal (p. 13, ll. 11-24); and means, connected to said second differentiator, for performing a first switching function based at least in part on the rate-of-change of the output signal (p. 13, l. 25—p. 15, l. 11; Fig. 1, block 42; Fig. 2A, block 63).

Embodiments according to independent claim 9 involve a method (p. 8, l. 4; p. 48, l. 8) which comprises: producing an output signal in response to a user input (p. 8, l. 5; p. 48, ll. 8-9); differentiating said output signal with respect to time and determining a rate-of-change of said output signal (p. 8, ll. 5-6; p. 48, ll. 10-11); and performing a first switching function in response to said differentiated output signal based on said rate-of-change (p. 8, ll. 6-7; p. 48, l. 11).

Embodiments according to independent claim 15 involve a method (p. 8, l. 8) which comprises: body-member tilting a first tilt-sensitive transducer (p. 8, l. 9-10); producing a first output signal proportional to said tilting step (p. 8, l. 10); differentiating said first output signal with respect to time and determining a rate-of-change (p. 8, l. 11); and performing a first switching function in response to said differentiated first output signal based on said rate-of-change (p. 8, ll. 11-12).

Embodiments according to independent claim 31 involve a method (p. 8, l. 8) which comprises: body-member actuating a transducer (p. 8, l. 9-10); producing an output signal proportional to said body-member actuating step (p. 8, l. 10); determining a rate-of-change of said output signal (p. 8, l. 11); and performing a switching function in response to said rate-of-change of said output signal (p. 8, ll. 11-12).

Embodiments according to independent claim 50 involve a method which comprises: body-member producing first and second proportional output signals (p. 13, ll. 29-33); and controlling both first and second proportional functions and a switching function of an apparatus in response to said output signals, wherein the switching function is controlled based on a rate-of-change of at least one of said first and second proportional output signals (p. 14, ll. 1-19).

Embodiments according to independent claim 62 involve a switch (p. 12, ll. 11; Fig. 1, block 26) which comprises: a mechanical-to-electrical tilt-sensitive transducer (p. 11, ll. 17-24; Figs. 1 and 2A, blocks 38A and 38B); a differentiator (Fig. 1, blocks 40A and 40B) configured to

determine a rate-of-change and connected to said tilt-sensitive transducer (p. 13, ll. 11-24); and a comparator connected to said differentiator (p. 18, ll. 26-28; Fig. 6, blocks U2A and U2B), said comparator configured to perform a first switching function based at least in part on the determined rate-of-change (p. 21, ll. 10-13).

Embodiments according to independent claim 63 involve a switch (p. 11, ll. 17-24; Figs. 1 and 2A, blocks 38A and 38B) which comprises: a transducer (p. 11, ll. 17-24; Figs. 1 and 2A, blocks 38A and 38B) that produces increasing and decreasing output signals proportional to user actuation in first and second directions (p. 19, ll. 8-12); and means for determining a rate-of-change of the output signal (p. 13, ll. 11-24) and for producing a switching function in response to a predetermined rate-of-change of said output signal produced by user actuation of said transducer in one of said directions (p. 13, l. 25—p. 15, l. 11; Fig. 1, block 42; Fig. 2A, block 63).

Embodiments according to independent claim 76 involve a method (p. 8, l. 4; p. 48, l. 8) which comprises: producing an output signal (p. 8, l. 5; p. 48, ll. 8-9); determining a first rate-of-change of said output signal (p. 8, ll. 5-6; p. 48, ll. 10-11; p. 24, l. 19—p. 25, l. 2); selectively performing a switching function in response to said output signal and based at least in part on said first rate-of-change exceeding a predetermined rate-of-change threshold (p. 8, ll. 6-7; p. 48, l. 11; p. 24, l. 19—p. 25, l. 2); determining a second rate-of-change of said output signal (p. 24, l. 19—p. 25, l. 2); and preventing variations in said output signal from performing said switching function based at least in part on said second rate-of-change not exceeding said predetermined rate-of-change threshold (p. 8, ll. 6-7; p. 48, l. 11; p. 24, l. 19—p. 25, l. 2).

Embodiments according to independent claim 81 involve a method (p. 8, l. 4; p. 48, l. 8) which comprises: producing an output signal that is a function of an input (p. 8, l. 5; p. 48, ll. 8-9); controlling an apparatus in response to said output signal (p. 48, ll. 8-12); determining a rate-of-change of the output signal (p. 8, ll. 5-6; p. 48, ll. 10-11); and performing a switching function in response to said determined rate-of-change exceeding a predetermined rate-of-change of said output signal (p. 8, ll. 6-7; p. 48, l. 11).

Embodiments according to independent claim 85 involve a method which comprises: performing a body-member gesture (p. 14, ll. 17-19); controlling an output signal in response to said body-member gesture (p. 14, ll. 20-23); maintaining a switch output status irrespective of said body-member gesture (p. 15, l. 25—p. 16, l. 8); and determining a rate-of-change of said

output signal (p. 16, ll. 9-13); and changing said switch output status in response to said determined rate-of-change exceeding a predetermined value (p. 16, l. 14—p. 17, l. 2).

Embodiments according to independent claim 89 involve a method which comprises: performing a body-member gesture (p. 14, ll. 17-19); controlling an output signal in response to said body-member gesture (p. 14, ll. 20-23); maintaining a switch output status irrespective of said controlling step (p. 15, l. 25—p. 16, l. 8); determining a rate-of-change of said output signal (p. 16, ll. 9-13); and changing said switch output status in response to said determined rate-of-change exceeding a predetermined rate-of-change of said output signal (p. 16, l. 14—p. 17, l. 2).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection are to be reviewed on appeal:

A. Claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-96 erroneously stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Allen et al.* (U.S. 5,749,372) in view of *Levy* (U.S. 5,742,228).

B. Claim 75 erroneously stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Allen et al.* (U.S. 5,749,372) in view of *Levy* (U.S. 5,742,228) as applied to claim 63 and further in view of *Muller* (U.S. 4,865,610).

C. Claims 36-42, 47 and 76-80 erroneously stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Allen et al.* (U.S. 5,749,372) in view of *Levy* (U.S. 5,742,228) and further in view of *Elwell* (U.S. 5,394,035).

D. Claims 17, 19, 43-46 and 48-49 erroneously stand objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

VII. ARGUMENT

The rejections against all of the pending claims under consideration in the above-captioned patent application should be reversed and overruled for at least the following reasons.

A. Brief Description of the Art Applied to the Claims

1. *Allen et al.* (U.S. 5,749,372) (hereinafter "*Allen et al.*")

Generally, *Allen et al.* relates to a method and apparatus for accurate and convenient feedback to a user concerning activity level performance, *i.e.*, an activity level performance monitor. More specifically, *Allen et al.* teaches providing an audible feedback to the user based on the user's desired and actual levels of performing an activity. Col. 1, lines 64-67. The invention of *Allen et al.* allows the user to monitor the user's current and instantaneous activity level with direct and instantaneous audible feedback on a current level of performance. Col. 2, lines 46-49.

2. *Levy* (U.S. 5,742,228) ("*Levy*")

Levy generally discloses an automated system for preventing the overturning of the bin of a tipper truck (*e.g.*, a dump truck) during the raising of the bin for purposes of unloading by monitoring sensors. Col. 2, ll. 13-17. That is, the system of *Levy* monitors the orientation and rate-of-change of a lateral level sensor and a longitudinal level sensor to prevent a dump truck from overturning. Col. 4, ll. 21-32. The system of *Levy* provides monitoring and feedback data to warn of potentially dangerous conditions to an operator who controls the truck. Col. 4, ll. 42—col. 5, ll. 17.

3. *Muller* (U.S. 4,865,610) ("*Muller*")

Generally, *Muller* relates to devices for controlling electrically operated appliances by emitting a signal in response to a user blowing and/or sucking air through a tube connected to an evaluation circuit coupled to the appliance to be controlled.

4. *Elwell* (U.S. 5,394,035) ("*Elwell*")

Elwell generally discloses a "rate of change" comparator that uses an RC charging circuit and a separate RC discharging circuit to follow a transducer output. More particularly, *Elwell*

relates to detecting when the "rate of change" of the signal being monitored exceeds a predetermined rate of change of a threshold amplitude

B. Summary of Appellant's Pending Application

The present invention relates to rate-of-change switches for controllable devices. In particular, the present invention provides for performing a switching function in response to differentiating an output signal and determining a rate of change of the output signal, where the output signal is produced in response to a user input. "More particularly, the present invention provides rate-of-change control devices that actuate in response to adjustable rate-of-change thresholds, timed-opportunity switches that can be actuated by one or more appropriately-timed inputs, and multiplexers, or ECUs, that can be used by physically-handicapped persons to control such things as wheelchair and hospital bed positing actuators, lighting, entertainment, communication, computer and productivity devices." P. 4, ll. 6-15. That is, the present invention provides for controlling devices and in one particular example for controlling power wheelchairs by handicapped people through the manipulation of a tilt-sensor.

C. Summary of Argument

Claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-96 are improperly rejected under 35 U.S.C. § 103(a) over the combination of *Allen et al.* and *Levy* because the Office Action fails to set forth a *prima facie* case of obviousness. In particular, neither *Allen et al.* nor *Levy*, either alone or in combination, disclose, teach, or suggest each of the claimed limitations. Moreover the outstanding Office Action uses impermissible hindsight to combine the non-analogous *Levy* reference with the *Allen et al.* reference to arrive at an inoperable combination. The deficiencies of the teachings of *Allen et al.* and *Levy* are not cured by the addition of *Muller* regarding claim 75 or by the addition of *Elwell* regarding claims 36-42, 47 and 86-80, and thus these claims too are improperly rejected under 35 U.S.C. § 103(a). Finally, claims 17, 19, 43-46 and 48-49 are improperly objected to because these claims depend from allowable claims. For at least these reasons, as fully discussed below, the Board should overrule the rejections of claims 1-5, 9-16, 31-42, 47, 50-52, 62-63, 74-80 and 81-96 under § 103(a) and the objections to claims 17, 19, 43-46 and 48-49.

D. Rejection of Claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-96 under 35 U.S.C. § 103(a): *Allen et al.* and *Levy*

Claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-96 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Allen et al.* in view of *Levy*. Regarding claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-96, Examiner fails to set forth a *prima facie* case of obviousness. Specifically, Appellant respectfully objects to the Office Action's impermissible use of hindsight to combine the non-analogous *Levy* reference with the *Allen et al.* reference to arrive at an inoperable combination. This improper rejection fails to establish a *prima face* case of obviousness as required by MPEP § 2143.

The United States Patent and Trademark Office (USPTO) bears the burden under 35 U.S.C. § 103 to establish obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). A proper rejection of a claim under 35 U.S.C. § 103 as being obvious based upon a combination of references requires that the cited combination of references must disclose, teach, or suggest (either implicitly or explicitly) all elements/features/steps of the claim at issue. *See, e.g., In re Dow Chemical*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988); *In re Keller*, 208 U.S.P.Q.2d 871, 881 (C.C.P.A. 1981). Furthermore, even if the combination discloses all the elements, "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418, 82 U.S.P.Q.2d 1385, 1396 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 78 U.S.P.Q.2d 1329, 1336 (Fed. Cir. 2006)). For at least the following reasons, Appellant respectfully traverses this rejection and requests that the Board overrule the same.

In the present case, there is no suggestion or motivation to combine the references or make the modifications proposed in the Office Action. Any such motivation or suggestion was arrived at only through the use of impermissible hindsight. And even if such a suggestion or motivation to combine the references did exist, which Appellant explicitly maintains that it does not, the combination would nonetheless render *Allen et al.* inoperable for its intended purpose. Further, even if the combination is proper, Appellant submits that the combination wholly fails to disclose, teach, or suggest each and every claimed limitation. For at least these reasons, as discussed more thoroughly below, Appellant respectfully submits that the Office Action fails to

establish a *prima facie* case of obviousness and requests that the rejection of claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-96 be withdrawn.

1. Impermissible Hindsight

Appellant respectfully submits that the combination of *Allen et al.* and *Levy* is improper regarding claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-96 because the outstanding Office Action impermissibly relies on hindsight based on information gleaned solely from Appellant's specification. MPEP § 2142 states that "impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of ***the facts gleaned from the prior art***." (Emphasis added). In *KSR Int'l Co. v. Teleflex, Inc.*, the Supreme Court warned against the dangers of hindsight bias: "A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning." 550 U.S. 398, 421 (2007). "Any judgment on obviousness is in a sense necessary in a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time of the claimed invention was made and ***does not include knowledge gleaned only from Appellant's disclosure***, such a reconstruction is proper." MPEP § 2145(X)(A) (quoting *In re McLaughlin*, 443 F.2d 1392, 1395 (C.C.P.A. 1971)) (emphasis added). In sum, it is well established in the law that hindsight to the Appellant's own disclosure is *per se* improper. *See Crown Operations Int'l, Ltd. v. Solutia, Inc.*, 289 F.3d 1367 (Fed. Cir. 2002) (stating that a determination of obviousness cannot be based on a hindsight combination of components selectively culled from the prior art to fit the parameters of the invention).

The outstanding Office Action on page 7 attempts to rationalize the combination of *Allen et al.* and *Levy* as follows:

> At the time of the invention, it would have been obvious to a person of ordinary skill in the art to recognize the need for a processor to determine[] the rate of increase in tilt angle using the lateral level sensor taught by Levy in the method for monitoring activity and providing feedback to a user concerning activity level performance of Allen et al. because determining the rate of increase in tilt angle would provide accurate feedback on their current level of activity based at least in part on the determined rate-of-change of the lateral level sensor.

Given the lack of a suggestion or motivation contained in the prior art for the proposed combination, and based on this cited passage from the Office Action, it appears that the only

suggestion or motivation to combine *Allen et al.* and *Levy* comes from Appellant's own disclosure. From this passage, Appellant must assume that the Office Action relies exclusively on Appellant's disclosure for motivation to combine *Levy* with *Allen et al.* as the Office Action offers no other support or rationale for such a combination. More particularly, the outstanding Office Action, after observing Appellant's disclosure, merely takes a portion of *Levy* (the determination of a rate-of-change) and incorporates it into *Allen et al.* to arrive at Appellant's invention. No teaching or suggestion in either *Allen et al.* or *Levy* implies combining the references as proposed by the Office Action. Appellant's own disclosure is the only such motivation for the proposed combination contained anywhere in the record.

Further, the Office Action offers no support for its conclusory assertion that "it would have been obvious to a person of ordinary skill in the art" to combine the two references. This approach results in the precise hindsight bias the Supreme Court warned against in *KSR*. In fact, it would ***not*** be obvious to one of ordinary skill in the art to combine two radically different references (*Allen et al.* and *Levy*) to arrive at the present invention. More specifically, Appellant fails to see how it would be obvious to one of ordinary skill in the art to combine the activity monitoring device of *Allen et al.* with the system of preventing a tipper truck from overturning of *Levy* to arrive at Appellant's rate-of-change devices for allowing a user to control a device actively. The monitoring device of *Allen et al.* is just that, a passive monitor of an individual's level of physical activity. It merely provides a rudimentary feedback or indication of the sensed physical activity. The individual wearing the *Allen et al.* device does not actively manipulate the device to control anything. The *Levy* device is a simple fail-safe sensor that prevents further deployment of a truck bed if outside an acceptable tilt-angle. Even if one were to combine this with the physical activity monitoring device of *Allen et al.* it would result in a physical monitoring device that ceased to operate or alarmed when at an orientation outside a set angle. Accordingly, without Appellant's disclosure, one of ordinary skill in the art would have no reason or motivation to combine *Allen et al.* with *Levy*, nor does the Office Action prove such a rationale. That it would be obvious to combine a determined rate-of-change of tilt shut off device as in *Levy* into an activity monitor as in *Allen et al.* is illogical and unsupported by the record. Appellant must therefore assume that the outstanding Office Action merely proposed the *Allen et al.* and *Levy* combination using hindsight solely based on ***knowledge gleaned only from Appellant's disclosure***, as prohibited by MPEP § 2145(X)(A) and *In re McLaughlin*.

Appellant respectfully submits that, because the Office Action relied on impermissible hindsight to combine *Allen et al.* with *Levy*, Appellant's invention is not obvious. For at least this reason, Appellant respectfully requests that the Board overrule the outstanding § 103(a) rejection regarding claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-96.

2. Levy Is Non-Analogous Art

Appellant respectfully objects to the application of *Levy* against claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-96 as *Levy* is non-analogous art. When evaluating references with regard to a patent claim, references which are non-analogous art may not combine to invalidate the claim under 35 U.S.C. § 103(a). *In re Wood*, 599 F.2d 1032, 1036 (C.C.P.A. 1979). *See In re Oetiker*, 977 F.2d 1443, 1446 (Fed. Cir. 1992); MPEP § 2141.01(a). To determine whether art is analogous, it must first be determined "if the reference is within the field of the inventor's endeavor." *In re Wood*, 599 F.2d at 1036. *See In re Clay*, 966 F.2d 656, 658 (Fed. Cir. 1994). If not, it must then be determined "whether the reference is reasonably pertinent to the particular problem with which the inventor was involved." *In re Wood*, 599 F.2d at 1036. "A reference is reasonably pertinent if . . . it is one which . . . logically would have commended itself to an inventor's attention in considering his problem." *In re Clay*, 966 F.2d at 658. Failing these requirements, the art is non-analogous, thereby prohibiting its use in an obviousness rejection under § 103(a).

The pending Office Action erroneously applies *Levy*, as allegedly analogous art, to reject claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-96 as obvious under § 103(a). The Office Action summarily, but incorrectly, states that *Levy* is "in the same field of endeavor for controlling apparatus." However, *Levy* clearly does not qualify as analogous art. Generally, *Levy* relates to a system for preventing a tipper truck (*i.e.*, a dump truck) from overturning. More specifically, *Levy* provides: "[a] system for preventing the overturning of the bin of a tipper truck during the raising of the bin for purposes of unloading includes a lateral level sensor to sense the lateral orientation of the tipper truck, and a longitudinal level sensor for sensing the longitudinal inclination of the bin." Abstract.

First, the *Levy* reference is not within the field of Lautzenhiser's endeavor as required by *In re Wood* and *In re Clay*. That is, as stated above, the present inventor is concerned with rate-of-change switches, which may be attached to or manipulated by a body member of a user,

thereby allowing a user to control devices such as power wheel chairs, hospital beds, handheld devices, and computer and productivity devices. Para. [0014]. The present invention allows a user to control a device by manipulating a tilt-sensitive transducer which may be attached to the user. In stark contrast, *Levy* does not relate to a user controlling power wheel chairs or computing devices, or a user controlling any other devices for that matter. The pending Office Action incorrectly alleges that the same field of endeavor is "devices for controlling apparatus." Office Action, pp. 3, 7. However, the Office Action unreasonably broadens the field of endeavor of *Levy*. In particular, *Levy*'s field of endeavor, based upon its primary U.S. Class categorization, relates to "subject matter in which the [vehicle] alarm is sensitive to vibrations or other motions of a vehicle caused by an intruder's actions." U.S. Cl. 340/429. In contrast, the field of endeavor of the present invention relates to "subject matter which maintains an output at a desired level through the use of means which responds to deviation in the output level and produces a change in the output which is opposite to the deviation." U.S. Cl. 323/234. A plain reading of these classifications alone is sufficient to establish that *Levy* is not within the field of the pending application.

Moreover, the nature and practice of the present invention, when viewed against *Levy*, illustrates the vast differences between the inventions and their respective fields of endeavor. The system of *Levy* merely prevents (or alarms at the prospect of) the tipping over of a tipper truck and is not responsive to user manipulation or operation whereas the present invention of Lautzenhiser allows a user to control various functions of a controllable apparatus, such as a power wheel chair (*e.g.*, powering up the wheel chair, driving and turning the wheel chair, etc.). The system of *Levy* merely monitors the orientation and rate-of-change of a lateral level sensor and a longitudinal level sensor of the tipper truck to prevent the tipper truck from overturning. Col. 4, ll. 21-32. That is, *Levy* merely provides monitoring and feedback data to an operator who controls the truck; *Levy* does not actually control any device as in the present invention. Rather, *Levy* merely provides feedback on a display to an operator who controls the tipper truck. Col. 4, ll. 42—col. 5, ll. 17. Quite clearly, the tipper truck system of *Levy* is not within the field of endeavor of an inventor concerning himself with users controlling handicap-assisting devices. As *Levy* wholly falls outside the field of Lautzenhiser's endeavor, *Levy* fails the first prong of the *In re Wood* and *In re Clay* test. For at least this reason, Appellant submits that *Levy* is non-analogous art.

Under the second prong of the *In re Wood* and *In re Clay* tests for determining whether art is analogous, the system of *Levy* is not reasonably pertinent to the particular problem with which Lautzenhiser was involved. As stated in *In re Clay*, a reference is pertinent if it "logically would have commended itself to an inventor's attention in considering his problem." 966 F.2d at 658. For example, if *Levy* had disclosed a system having a user manipulated device, *e.g.*, a handheld device or glove that the user manipulated, to control the operation of the tipper truck, then it arguably would have been analogous art. However *Levy* does not disclose such a system. Accordingly, it is unreasonable to conclude that the tipper truck system of *Levy* would logically commend itself to Lautzenhiser's attention in considering his problem of "providing for the needs of handicapped persons" to operate devices. Para. [0001]. Namely, Lautzenhiser was concerned with solving the problem of "not only providing for the needs of handicapped persons, but also of utilizing them as productive members of society, rather than keeping them partially or wholly dependent upon others." Para. [0001]. That is, although not limited to uses for handicapped persons, Lautzenhiser was concerned with providing for the safety, comfort, productivity, and entertainment needs of handicapped persons by providing rate-of-change control devices that actuate in response to input from a user and result in the control of a device. Paras. [0012] and [0015]. Contrastingly, *Levy* relates to preventing a tipper truck from overturning, not to controlling a device by a user. Clearly, *Levy* fails to relate to the problem which Lautzenhiser was involved, and it logically would not have commended itself to Lautzenhiser's attention.

Because *Levy* is not within the field of Lautzenhiser's endeavor and because *Levy* is not reasonably pertinent to the particular problem with which Lautzenhiser was involved, *Levy* is non-analogous art and cannot be used to reject the pending claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-96 under 35 U.S.C. § 103(a). Appellant respectfully requests that the rejection be withdrawn.

3. The Combination of *Allen et al.* and *Levy* is inoperable.

The combination and modification suggested in the Office Action (*i.e.*, incorporating the tilt-sensor and determining rate-of-change as in *Levy* into the activity monitor of *Allen et al.*) would render the core functionality of the *Allen et al.* system inoperable. Appellant respectfully notes that if a reference would be "rendered inoperable for its intended purpose" when it is modified for use as prior art, then the reference "teaches away" and should not be used. *In re*

Gordon, 733 F.2d 900 (Fed. Cir. 1984). *See* MPEP § 2143.01(V) ("If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.").

At present, the Office Action has proposed a combination and modification which would render the system of *Allen et al.* inoperable and unsatisfactory for its intended purpose. Namely, the Office Action suggests that incorporating the tilt-sensor and rate-of-change determination of *Levy* will "provide accurate feedback on their current level of activity based at least in part on the determined rate-of-change of the lateral level sensor." Office Action, p. 7. However, this modification would lead to the inoperability of the resulting combination.

One key aspect of the difference between *Allen et al.* and *Levy* is in the sensing devices used. Specifically, *Allen et al.* monitors a user's activity level by sensing changes in a user's acceleration by using a piezoelectric transducer device. Col. 2, ll. 60-65. *Allen*, unconcerned with tilt, uses a piezoelectric device that mechanically responds to physical activity so as to produce an electrical indication of activity. In contrast, *Levy* uses a tilt-sensitive transducer such as a clinometer or inclinometer to "accurately measure the ***lateral tilt*** of the tipper truck." Col. 1, l. 66—col. 2, l. 1 (emphasis added). *Levy*, unconcerned with level of activity, uses an inclinometer to measure a changing angle, which signal then may be used to produce a display angle or a series of green, yellow, and red indicator lights or a trip circuit. By replacing the piezoelectric transducer device of *Allen et al.* with the tilt-sensor of *Levy*, the *Allen et al.* system becomes inoperable. For instance, substituting the tilt angle inclinometer of *Levy* with the mechanical/electrical piezoelectric device of *Allen et al.*, would render the *Allen et al.* device incapable of sensing mechanical, physical activity. Although *Allen et al.* does refer to using multiple piezoelectric devices along different axes, this is to insure capture of mechanical, physical activity at different orientations and is not to sense relative angles. This proposed modification clearly renders *Allen et al.* unsatisfactory for its intended purpose, as prohibited by MPEP § 2143.01(V) and *In re Gordon*. As such, Appellant respectfully submits that the proposed combination of *Allen et al.* and *Levy* is inoperable and therefore is improper.

Without waiving its objection to the improper combination of *Allen et al.* and *Levy*, Appellant further addresses the prior art on their merits, in light of Appellant's pending claims.

4. Independent Claims 1, 4, 9, 15, 31, 50, 62-63, 81, 85 and 89

The outstanding Office Action indicates that independent claims 1, 4, 9, 15, 31, 62-63, 81, 85 and 89 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Allen et al.* in view of *Levy.* Appellant respectfully traverses this rejection for at least the reason that the combination of *Allen et al.* and *Levy* fails to disclose, teach, or suggest all of the features in the cited claims.[1] Representative of those rejected claims, claim 1 recites:

> A switch which comprises:
>
> a. a tilt-sensitive transducer that produces an output signal in response to a user manipulating said transducer;
>
> b. a differentiator adapted to receive said output signal and to determine a rate-of-change of said output signal;
>
> c. means, connected to said differentiator, for performing a first switching function based at least in part on the determined rate-of-change.

Appellant respectfully submits that independent claim 1 patently defines over *Allen et al.* and *Levy* for at least the reason that *Allen et al.* and *Levy* fail to disclose, teach, or suggest at least "a tilt-sensitive transducer", "a differentiator adapted to receive said output signal and to determine a rate-of-change of said output signal", and "means, connected to said differentiator, for performing a first switching function based at least in part on the determined rate-of-change" as recited in claim 1. More specifically, *Allen et al.* teaches providing an audible feedback to a user based on the user's desired and actual levels of performing an activity. Col. 1, lines 64-67. The invention of *Allen et al.* allows a user to monitor the user's contemporaneous activity level with direct and instantaneous audible feedback related to the user's level of performance. (Col. 2, lines 46-49).

Allen et al. fails to disclose a tilt-sensitive transducer but rather discloses an "accelerometer." The *Allen et al.* reference specification is replete with references to sensing "acceleration" but fails to disclose sensing tilt or orientation or producing an output signal responsive thereto. For instance, the very recitation relied on by the examiner, col. 2, lines 60-67, clearly recites the "piezoelectric transducer device acting as a sensor of the user's ***acceleration*** . . . . The device senses an ***acceleration*** induced by the user's activity. If a single

[1] Appellant groups these independent claims together for argument purposes only, merely in an effort to reduce repetitiveness and avoid adding excessive and unnecessary length to this Appeal Brief. However, in no way does Appellant waive any arguments or rights to any one of these independent claims by grouping them together. Each claim encompasses varying scopes of the present invention(s) and as such must be evaluated separately for patentability purposes.

transducer sensor is used, the monitor is most sensitive to a single plane of body motion, i.e., up and down movement." (Emphasis added). *Allen et al.* does not suggest, much less teach, sensing of tilt or orientation. The reliance on the recitation at col. 7, line 32 through col. 8, line 11, is likewise misplaced. The part identified in the specification is an accelerometer, not a tilt-sensitive transducer. This device produces a second derivative type output, e.g., acceleration, and does not produce tilt or orientation output. Further, incorporating the tilt sensor of *Levy* causes *Allen et al.* to be inoperable for its intended purpose, as discussed above.

Moreover, *Allen et al.* fails to disclose, teach, or suggest using a differentiator to determine a rate-of-change, as expressly admitted in the Office Action on pages 3 and 7: "Allen et al. did not explicitly disclose determining a rate-of-change of said output signal." The Office Action erroneously concludes that the analog-to-digital converter and amplifier detector of *Allen et al.*, when combined with the teachings of *Levy*, function in a manner comparable to the differentiator of claim 1. Office Action, pages 7. In reality, the analog-to-digital converter and amplifier detector of *Allen et al.* fail to perform any differentiation at all. Moreover, incorporating the teachings of *Levy* into *Allen et al.* is improper, as discussed above, because *Levy* is non analogous art and because the combination is inoperable.

As described in the application, the present invention teaches a rate-of-change switch which uses a calculus derivative to calculate and determine the rate-of-change. Fig. 11; paras. [0165]-[0167]. The analog-to-digital converter and amplifier detector of *Allen et al.* instead simply convert the analog signal of the piezoelectric transducer to an audible signal. Col. 7, lines 37-40. The Office Action incorrectly asserts this conversion to be differentiation by alleging that "an amplifier/detector (24) connected to an analog/digital converter (22)" is a differentiator. Office Action, page 7. However, this "differentiation" in *Allen et al.* does not determine a rate-of-change of the output signal as claimed.

Although the disclosure of *Allen et al.* speaks of acceleration, the invention of *Allen et al.* does not actually determine a rate-of-change of distance, velocity, or acceleration. Specifically, *Allen et al.* does not suggest or refer in any way to any derivative for determining rate-of-change, as is inherent in a differentiator as claimed by Appellant. As described in the specification, unlike *Allen et al.* the present invention utilizes a first derivative (and in some cases a second derivative) to determine a rate-of-change. Para. [0167]. *Allen et al.* instead simply recognizes "[a] threshold acceleration sufficient to indicate activity performance by the user." Col. 4, lines

49-51. The *Allen et al.* reference wholly fails to determine or calculate any rate-of-change whatsoever. Moreover, the Office Action explicitly recognizes this point on page 4: "Allen et al. did not explicitly disclose determine a rate-of-change of said output signal." Instead, the Office Action erroneously applies *Levy* as allegedly teaching this limitation. The Office Action seems to ignore the plain claim language, in light of the specification. Appellant claims "a differentiator adapted to receive said output signal and to determine a rate-of-change of said output signal" as recited in claim 1. That is, the differentiator determines the rate-of-change. However, as *Allen et al.* fails to disclose a differentiator, and as the *Levy* reference cannot be properly combined with *Allen et al.*, neither *Allen et al.* nor *Levy*, alone or in combination, disclose, teach, or suggest "a differentiator adapted to receive said output signal and to determine a rate-of-change of said output signal" as recited in claim 1. For at least these reasons, independent claim 1 patently defines over *Allen et al.*

These same arguments apply equally to independent claims 4, 9, 15, 31, 62, 63, 76, 81, 85 and 89. For instance, each of these claims also teaches determining a rate-of-change as in independent claim 1. Further, regarding claims 4 and 62, the proposed combination fails to disclose, teach or suggest a second differentiator, *e.g.*, determining a second rate-of-change as claimed. As discussed above, the analog-to-digital converter and amplifier detector of *Allen et al.* fail to perform any differentiation at all; therefore, the combination wholly fails to teach a first differentiator, much less a second differentiator. Moreover, claim 4 recites "a second differentiator connected to said first differentiator" which is also absent in the proposed combination. Regarding claims 9 and 15, the Office Action at pages 8 and 9 wholly fails to acknowledge the limitation "differentiating said output signal with respect to time" as in claim 9 and instead merely (and incorrectly) attempts to form a differentiator out of an audio amplifier/detector. This allegation wholly ignores the plain claim language of "with respect to time". Nowhere does *Allen et al.* or *Levy* teach differentiating, much less "differentiating said output signal with respect to time" as claimed.

Further regarding claims 15 and 31, the *Allen et al.* and *Levy* combination wholly fails to disclose, teach or suggest "producing a first output signal proportional to said tilting step" as recited in claim 15. Instead, the Office Action merely alleges that the combination and *Allen et al.* in particular teaches "produces an output signal in response to a user's activity (i.e. a user input)" at page 8. However, a plain reading of the references shows that at most *Allen et al.*

provides some feedback based on a user reaching a certain pre-defined level of physical activity. However, nowhere does the reference suggest that the feedback is "proportional to said tilting step" as claimed. Rather, the feedback in *Allen et al.* is simply an audible alert if the user reaches a specified level of activity.

Regarding claim 63, the Office Action incorrectly alleges that the combination teaches "a transducer that produces increasing and decreasing output signals proportional to user actuation in first and second directions" as claimed. However, the combination wholly fails to suggest anything about a transducer producing ***decreasing*** output signals proportional to user actuation as claimed. Rather, at most, *Allen et al.* produces a non-proportional output when a user's level reaches a certain level. But *Allen et al.* produces no output at all when the user's level decreases. In fact, such a signal would destroy the supposed purpose of *Allen et al.*: to provide user feedback when the user's level reaches a certain pre-defined level of activity. For at least this reason, claim 63 is allowable.

For at least these reasons, independent claims 4, 9, 15, 31, 62, 63, 76, 81, 85 and 89 are allowable, and Appellant respectfully requests that the Board overrule the outstanding § 103(a) rejection regarding these independent claims.

5. Dependent Claims 2-3, 5, 10-14, 32-35, 51-52, 74, 82-84, 86-88 and 90-95

Additionally, because *Levy* fails to overcome the deficiencies of *Allen et al.*, dependent claims 2-3 and 76 are allowable for at least the reason that these claims depend from and include the elements of allowable independent claim 1. Similarly, dependent claim 5 is allowable for at least the reason that this claim depends from and includes the elements of allowable independent claim 4. Dependent claim 16 is allowable for at least the reason that this claim depends from and includes the elements of allowable independent claim 15. Dependent claims 32-35 are allowable for at least the reason that these claims depend from and include the elements of allowable independent claim 31. Dependent claims 51-52 are allowable for at least the reason that these claims depend from and include the elements of allowable independent claim 50. Dependent claim 74 is allowable for at least the reason that this claim depends from and includes the elements of allowable independent claim 63. Dependent claims 82-84 are allowable for at least the reason that these claims depend from and include the elements of allowable independent claim 81. Dependent claims 86-88 are allowable for at least the reason that these claims depend from and include the elements of allowable independent claim 85. Dependent claims 90-95 are

allowable for at least the reason that these claims depend from and include the elements of allowable independent claim 89. *In re Fine,* 837 F.2d 1071 (Fed. Cir. 1988); *Minnesota Mining and Mfg.Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002).

E. Rejection of Claim 75 under 35 U.S.C. § 103(a): *Allen et al., Levy,* and *Muller*

Additionally, because *Muller* fails to overcome the deficiencies of the *Allen et al.* and *Levy* combination, dependent claim 75 is allowable for at least the reason that this claim depends from and includes the elements of allowable independent claim 63. *In re Fine,* 837 F.2d 1071 (Fed. Cir. 1988); *Minnesota Mining and Mfg.Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002).

F. Rejection of Claims 36-42, 47 and 76-80 under 35 U.S.C. § 103(a): *Allen et al., Levy,* and *Elwell*

The outstanding Office Action indicates that independent claim 76 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Allen et al.* in view of *Levy* and *Elwell.* Appellant respectfully traverses this rejection for at least the reason that the combination of *Allen et al.*, *Levy* and *Elwell* fails to disclose, teach, or suggest all of the features in the cited claim. Specifically, claim 76 recites:

> A method which comprises:
> a. producing an output signal;
> b. determining a first rate-of-change of said output signal;
> c. selectively performing a switching function in response to said output signal and based at least in part on said first rate-of-change exceeding a predetermined rate-of-change threshold;
> d. determining a second rate-of-change of said output signal; and
> e. preventing variations in said output signal from performing said switching function based at least in part on said second rate-of-change not exceeding said predetermined rate-of-change threshold.

Appellant respectfully submits that independent claim 76 patently defines over *Allen et al.*, *Levy*, and *Elwell* for at least the reason that the combination wholly fails to disclose, teach, or suggest at least "preventing variations in said output signal from performing said switching function based at least in part on said second rate-of-change not exceeding said predetermined rate-of-change threshold" as recited in claim 76. Appellant reiterates its arguments above regarding *Allen et al.* and *Levy* and incorporates them by reference as they apply to claim 76. Appellant omits reciting those arguments here in an effort to avoid unnecessary length.

Moreover, the addition of *Elwell* fails to cure the deficiencies of *Allen et al.* and *Levy* regarding the claim limitation "preventing variations in said output signal from performing said switching function based at least in part on said second rate-of-change not exceeding said predetermined rate-of-change threshold" as recited in claim 76. In particular, the Office Action alleges that the following passages of *Elwell* disclose the claimed limitation: column 4, line 67; through column 5, lines 18; column 6, lines 44 to 56 and column 7, lines 1 to 4. However, these passages relate to preventing "false triggering of the comparator signal" of a threshold bias voltage. In stark contrast, the pending application claims "preventing variations in said output signal from performing said switching function ***based at least in part on said second rate-of-change*** . . ." as claimed. That is, *Elwell* prevents the false triggering based on a minimum ***threshold bias voltage*** but does not prevent false triggering based on a rate of change. Therefore, *Elwell* wholly fails to disclose, teach or suggest at least "preventing variations in said output signal from performing said switching function based at least in part on said second rate-of-change not exceeding said predetermined rate-of-change threshold" as recited in claim 76. For at least this reason, and for all the reasons relating to claim 1 as discussed above, Appellant respectfully requests that the Board overrule this rejection.

Additionally, because *Elwell* fails to overcome the deficiencies of the *Allen et al.* and *Levy* combination, dependent claims 36-42, 47 and 77-80 are allowable for at least the reason that these claims depend from and include the elements of allowable independent claim 46. *In re Fine,* 837 F.2d 1071 (Fed. Cir. 1988); *Minnesota Mining and Mfg.Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002).

G. Objection to Claims 17, 19, 43-46 and 48-49

Examiner objects to claims 17, 19, 43-46 and 48-49 as being dependent upon a rejected base claim but admits that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and intervening claims. Appellant respectfully submits that claims 17, 19, 43-46 and 48-49 are in fact allowable in their present form as these claims depend from allowable claims, as discussed above. *See In re Fine,* 837 F.2d 1071 (Fed. Cir. 1988); *Minnesota Mining and Mfg.Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002). As such, Appellant respectfully requests that the Board overrule this objection.

CONCLUSION

For at least the reasons discussed above, Appellant respectfully requests that the Examiner's final rejection of claims 1-5, 9-17, 19, 31-52, 62-63, and 74-96 be overruled by the Board. Further, if the Board reopens prosecution by remanding the case to Examiner, Appellant respectfully requests that the Board do so with special instructions to Examiner to withdraw the improper finality of the outstanding Office Action and to clarify his remarks, thereby providing Appellant a full and fair hearing before further appeal. Currently appealed claims 1-18 appear below in the included Section VIII. CLAIMS APPENDIX. Section IX. EVIDENCE APPENDIX included herein indicates the prior art references relied upon by this brief. Section X. RELATED PROCEEDINGS APPENDIX included herein indicates that there are no relevant opinions or decisions issued by the Board or a court.

Respectfully submitted,
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Date: January 4, 2011

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VIII. CLAIMS APPENDIX

1. (Previously Presented) A switch which comprises:

a. a tilt-sensitive transducer that produces an output signal in response to a user manipulating said transducer;

b. a differentiator adapted to receive said output signal and to determine a rate-of-change of said output signal;

c. means, connected to said differentiator, for performing a first switching function based at least in part on the determined rate-of-change.

2. (Previously Presented) A switch as claimed in Claim 1 in which said tilt-sensitive transducer comprises a transducer that produces an output signal proportional to a manipulation of the transducer.

3. (Previously Presented) A switch as claimed in Claim 1 in which said tilt-sensitive transducer comprises a transducer that produces an output signal proportional to a tilting input.

4. (Previously Presented) A switch which comprises:

a. a tilt-sensitive transducer that produces an output signal in response to a user input;

b. a first differentiator adapted to receive said output signal and adapted to determine a first derivative of said output signal;

c. a second differentiator connected to said first differentiator adapted to determine a second derivative of said output signal representing a rate-of-change of the output signal; and

d. means, connected to said second differentiator, for performing a first switching function based at least in part on the rate-of-change of the output signal.

5. (Previously Presented) A switch as claimed in Claim 4 which further comprises means, connected to said first differentiator, for performing a second switching function.

6.-8. (Canceled)

9. (Previously Presented) A method which comprises:

a. producing an output signal in response to a user input;

b. differentiating said output signal with respect to time and determining a rate-of-change of said output signal; and

c. performing a first switching function in response to said differentiated output signal based on said rate-of-change.

10. (Original) A method as claimed in Claim 9 in which said producing step comprises:

a. attaching a transducer to a person; and

b. body-member actuating said transducer.

11. (Previously Presented) A method as claimed in Claim 9 in which:

a. said method further comprises differentiating said output signal a second time; and

b. said performing step comprises performing said first switching function in response to said second differentiating step.

12. (Previously Presented) A method as claimed in Claim 9 in which:

a. said differentiating step comprises differentiating said output signal a second time; and

b. said method further comprises performing a second switching function in response to said second differentiating step.

13. (Previously Presented) A method as claimed in Claim 9 in which said method further comprises:

a. performing said first switching function when said output signal is increasing; and

b. performing a second switching function when said output signal is decreasing.

14. (Previously Presented) A method as claimed in Claim 9 in which said method further comprises:

a. performing said first switching function when said output signal is increasing;

b. performing a second switching function when said output signal is decreasing; and

c. producing a logic output as a function of both of said switching functions.

15. (Previously Presented) A method which comprises:

a. body-member tilting a first tilt-sensitive transducer;

b. producing a first output signal proportional to said tilting step;

c. differentiating said first output signal with respect to time and determining a rate-of-change; and

d. performing a first switching function in response to said differentiated first output signal based on said rate-of-change.

16. (Previously Presented) A method as claimed in Claim 15 in which said method further comprises:

a. body-member tilting a second tilt-sensitive transducer;

b. producing a second output signal proportional to said tilting of said second tilt-sensitive transducer;

c. differentiating said second output signal with respect to time; and

d. performing a logic output as a function of said first and second differentiated output signals.

17. (Previously Presented) A method as claimed in Claim 15 in which said performing step comprises performing a switching function that includes momentary contact switching, and said method further comprises:

a. initiating a sequential plurality of time delays in which one is a window of opportunity;

b. refraining from said momentary-contact switching step during a first time delay that follows said initiating step;

c. performing said momentary-contact switching step within said window of opportunity that follows said first time delay;

d. refraining from said momentary-contact switching step during a second time delay that follows said window of opportunity; and

e. initiating operation of a first electrical device subsequent to successful completion of the preceding steps.

18. (Canceled)

19. (Previously Presented) A method as claimed in Claim 17 in which said method further comprises:

a. momentary-contact switching during said second time delay; and

b. initiating operation of a second electrical device in response to said momentary-contact switching step occurring during said second time delay.

20.-30. (Canceled)

31. (Previously Presented) A method which comprises:

a. body-member actuating a transducer;

b. producing an output signal proportional to said body-member actuating step;

c. determining a rate-of-change of said output signal; and

d. performing a switching function in response to said rate-of-change of said output signal.

32. (Previously Presented) A method as claimed in Claim 31 in which:

a. said producing step comprises producing an output signal that increases and decreases; and

b. said performing step comprises performing said switching function whenever said rate-of-change of said increasing output signal reaches a predetermined magnitude.

33. (Previously Presented) A method as claimed in Claim 31 in which:

a. said producing step comprises producing an output signal that increases and decreases; and

b. said performing step comprises performing said switching function whenever said rate-of-change of said decreasing output signal reaches a predetermined magnitude.

34. (Previously Presented) A method as claimed in Claim 31 in which said method further comprises controlling an apparatus in response to said output signal.

35. (Previously Presented) A method as claimed in Claim 31 in which said method further comprises activating control of any apparatus in response to said switching function.

36. (Previously Presented) A method as claimed in Claim 76 in which said method further comprises activating control of an apparatus in response to said switching function.

37. (Previously Presented) A method as claimed in Claim 76 in which said method further comprises controlling an apparatus in response to said output signal.

38. (Previously Presented) A method as claimed in Claim 76 in which said method further comprises activating control of an apparatus in response to said switching function being performed inside a window of opportunity.

39. (Previously Presented) A method as claimed in Claim 76 in which said method further comprises:

a. activating control of an apparatus in response to said switching function being performed inside a window of opportunity; and

b. aborting said activating step in response to said switching function being performed outside said window of opportunity.

40. (Previously Presented) A method as claimed in Claim 76 in which said method further comprises activating a shut-down function of an apparatus in response to said switching function.

41. (Previously Presented) A method as claimed in Claim 76 in which said method further comprises activating a selected one of a first or a second apparatus in response to said switching function.

42. (Previously Presented) A method as claimed in Claim 76 in which said method further comprises:

a. activating a selected one of a first or a second apparatus in response to performing said switching function during a window of opportunity; and

b. proportionally controlling a function of said selected apparatus as a function of said proportional output signal.

43. (Previously Presented) A method as claimed in Claim 76 in which said method further comprises:

a. activating a selected one of a first or a second apparatus in response to performing said switching function during a window of opportunity;

b. selecting a function of said selected apparatus to be controlled; and

c. said selecting step comprises performing an other switching function.

44. (Previously Presented) A method as claimed in Claim 76 in which said method further comprises:

a. activating a selected one of a first or a second apparatus in response to performing said switching function during a window of opportunity;

b. selecting a function of said selected apparatus to be controlled;

c. said selecting step comprises performing an other switching function;

d. controlling said selected function; and

e. said controlling step comprises performing still an other switching function.

45. (Previously Presented) A method as claimed in Claim 76 in which said method further comprises:

a. initiating cascading a plurality of task opportunities;

b. selecting a task; and

c. said selecting step comprises performing said switching function.

46. (Previously Presented) A method as claimed in Claim 76 in which said method further comprises:

a. initiating cascading a plurality of task opportunities;

b. selecting a task;

c. said selecting step comprises performing said switching function;

d. selectively controlling said task; and

e. said selective controlling step comprises performing an other switching function.

47. (Previously Presented) A method as claimed in Claim 76 in which said method further comprises:

a. initiating cascading a plurality of task opportunities; and

b. said initiating step comprises performing said switching function.

48. (Previously Presented) A method as claimed in Claim 76 in which said method further comprises:

a. initiating cascading a plurality of task opportunities;

b. said initiating step comprises performing said switching function;

c. selecting a task; and

d. said selecting step comprises performing an other switching function.

49. (Previously Presented) A method as claimed in Claim 76 in which said method further comprises:

a. initiating cascading a plurality of task opportunities;

b. said initiating step comprises performing said switching function;

c. selecting a task;

d. said selecting step comprises performing an other switching function;

e. selectively controlling said task; and

f. said selective controlling step comprises performing still an other switching function.

50. (Previously Presented) A method which comprises:

a. body-member producing first and second proportional output signals; and

b. controlling both first and second proportional functions and a switching function of an apparatus in response to said output signals, wherein the switching function is controlled based on a rate-of-change of at least one of said first and second proportional output signals.

51. (Original) A method as claimed in Claim 50 in which said controlling step of said switching function comprises differentiating one of said output signals.

52. (Previously Presented) A method as claimed in Claim 50 in which:

a. said body-member producing step comprises producing output signals that change in both increasing and decreasing directions; and

b. said controlling step further comprises controlling said switching function in response to a rate-of-change of one of said output signals that exceeds a predetermined magnitude when said one output signal is changing in a selected one of said directions.

53-61. (Canceled)

62. (Previously Presented) A switch which comprises:

a. a mechanical-to-electrical tilt-sensitive transducer;

b. a differentiator configured to determine a rate-of-change and connected to said tilt-sensitive transducer; and

c. a comparator connected to said differentiator, said comparator configured to perform a first switching function based at least in part on the determined rate-of-change.

63. Previously Presented) A switch which comprises:

a. a transducer that produces increasing and decreasing output signals proportional to user actuation in first and second directions; and

b. means for determining a rate-of-change of the output signal and for producing a switching function in response to a predetermined rate-of-change of said output signal produced by user actuation of said transducer in one of said directions.

64-73. (Canceled)

74. (Previously Presented) A switch as claimed in Claim 63 in which said switch comprises means for producing a second switching function in response to a predetermined rate-of-change of said output signal produced by user actuation of said transducer in the other of said directions.

75. (Previously Presented) A switch as claimed in Claim 63 in which:

a. said switch comprises means for producing a second switching function in response to a predetermined rate-of-change of said output signal produced by user actuation of said transducer in the other of said directions; and

b. said switch further comprises means for producing a third switching function.

76. (Previously Presented) A method which comprises:

a. producing an output signal;

b. determining a first rate-of-change of said output signal;

c. selectively performing a switching function in response to said output signal and based at least in part on said first rate-of-change exceeding a predetermined rate-of-change threshold;

d. determining a second rate-of-change of said output signal; and

e. preventing variations in said output signal from performing said switching function based at least in part on said second rate-of-change not exceeding said predetermined rate-of-change threshold.

77. (Previously Presented) A method as claimed in Claim 76 in which said producing step comprises actuating an input.

78. (Previously Presented) A method as claimed in Claim 76 in which said producing step comprises body-member actuating an input.

79. (Previously Presented) A method as claimed in Claim 76 in which said selectively performing step further comprises selectively adjusting said predetermined rate-of-change threshold.

80. (Previously Presented) A method as claimed in Claim 76 in which at least one of said determining steps comprises differentiating said output signal.

81. (Previously Presented) A method which comprises:

a. producing an output signal that is a function of an input;

b. controlling an apparatus in response to said output signal;

c. determining a rate-of-change of the output signal

d. performing a switching function in response to said determined rate-of-change exceeding a predetermined rate-of-change of said output signal.

82. (Previously Presented) A method as claimed in Claim 81 in which said producing step comprises body-member actuating said input.

83. (Previously Presented) A method as claimed in Claim 81 in which said performing step further comprises selectively adjusting said predetermined rate-of-change of said output signal.

84. (Previously Presented) A method as claimed in Claim 81 in which said performing step comprises comparing said determined rate-of-change with said predetermined rate-of-change of said output signal.

85. (Previously Presented) A method which comprises:

a. performing a body-member gesture;

b. controlling an output signal in response to said body-member gesture;

c. maintaining a switch output status irrespective of said body-member gesture; and

d. determining a rate-of-change of said output signal

e. changing said switch output status in response to said determined rate-of-change exceeding a predetermined value.

86. (Previously Presented) A method as claimed in Claim 85 in which said method further comprises controlling an apparatus in response to said body-member gesture.

87. (Previously Presented) A method as claimed in Claim 85 in which said method further comprises selectively adjusting said predetermined value.

88. (Previously Presented) A method as claimed in Claim 85 in which said determining step comprises differentiating said output signal.

89. (Previously Presented) A method which comprises:

a. performing a body-member gesture;

b. controlling an output signal in response to said body-member gesture;

c. maintaining a switch output status irrespective of said controlling step;

d. determining a rate-of-change of said output signal; and

e. changing said switch output status in response to said determined rate-of-change exceeding a predetermined rate-of-change of said output signal.

90. (Previously Presented) A method as claimed in Claim 89 in which said method further comprises initiating control of an apparatus in response to said output signal.

91. (Previously Presented) A method as claimed in Claim 89 in which said method further comprises controlling an apparatus in response to said output signal.

92. (Previously Presented) A method as claimed in Claim 89 in which:

a. said performing step comprises increasing and decreasing said output signal; and

b. said changing step comprises changing said switch output status in response to said increasing output signal.

93. (Previously Presented) A method as claimed in Claim 89 in which:

a. said performing step comprises increasing and decreasing said output signal; and

b. said changing step comprises changing said switch output status in response to said decreasing output signal.

94. (Previously Presented) A method as claimed in Claim 89 in which:

a. said performing step comprises producing increasing and decreasing output signals;

b. said changing step comprises changing said switch output status in response to said increasing output signal; and

c. said method further comprises performing an other switching function in response to said decreasing output signal.

95. (Previously Presented) A method as claimed in Claim 89 in which said changing step comprises differentiating said output signal.

96. (Previously Presented) A switched as claimed in Claim 1 wherein the output signal is related to a change in orientation of the transducer.

IX. EVIDENCE APPENDIX

Allen et al. (U.S. 5,749,372)

Levy (U.S. 5,742,228)

Muller (U.S. 4,865,610)

Elwell (U.S. 5,394,035)

X. RELATED PROCEEDINGS APPENDIX

None.